



**UNITED STATES DEPARTMENT OF COMMERCE  
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/082,264	05/20/98	CHEN	J CHEN-1-(5442)

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WM01/0917

EXAMINER

GRIER, L

ART UNIT

PAPER NUMBER

2644

DATE MAILED: 09/17/01

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

## Office Action Summary

Application No.

09/082,264

Applicant(s)

CHEN, JIASHU

Examiner

Laura A Grier

Art Unit

2644

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 9-20 is/are rejected.
- 7) ☒ Claim(s) 8 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. **Claim 1** is rejected under 35 U.S.C. 102(b) as being anticipated by Chen et al. (U. S. Patent No. 5500900).

Regarding **claim 1**, Chen et al. discloses methods and apparatus for producing directional sound. Chen et al.'s disclosure comprises means of determining a characteristic function, wherein the characteristic constitutes a head-related impulse response, means of applying the characteristic function as a filter, and means of converting the filtered signal to a sound wave thus providing/producing the sound wave to a listener (figure 5b, col. 6, lines 45-67 – col. 7, lines 1-5 and col. 8, lines 1-25).

Regarding **claim 2**, Chen et al. discloses everything claimed as applied above (see claim 1). Chen et al.'s disclosure further support for the characteristic function comprising data information related to the environment in which the sound is perceived (col. 3, lines 63-64).

Regarding **claims 3-7**, Chen et al. discloses everything claimed as applied above (see claim 1). Chen et al.'s disclosure further inherently provides support of a spatial feature extraction and regularization model; spatial component and temporal component

(summed matrix of a predetermined number of eigen vectors ranging from 3 to 16); and wherein the components are determined by a Karhunen-Loeve Expansion (col.4, lines 24-67 – col. 5, lines 1-53).

3. **Claim 9** is rejected under 35 U.S.C. 102(b) as being anticipated by Chen et al.

Regarding claim 9, Chen et al. discloses methods and apparatus for producing directional sound. Chen et al.'s disclosure comprises an input for receiving a signal representing a sound; and left and right channel with a filter array for applying a filter to the signal, in which the function of the filter comprises a head-related impulse response; and an output for converting the filtered signals to the binaural sound and producing a sound to the listener (figure 5a and col. 13, lines 24-59).

Regarding **claims 10-12**, they are interpreted and rejected for the same set forth in claims 3-5.

Regarding **claims 13-15**, Chen et al. discloses everything claimed as applied above (see claim 9). Chen et al. further discloses comprises an environment input for receiving information of regarding the listening of the listener; means constituting a calculator with a computer program (figure 5a, col. 5, lines 58-65 and col. 7, lines 6-50).

4. **Claim 16** rejected under 35 U.S.C. 102(b) as being anticipated by Chen et al.

Regarding claim 16, Chen et al. discloses methods and apparatus for producing directional sound. Chen et al.'s disclosure comprises an environment input for receiving

information of regarding the listening of the listener; means constituting a calculator with a computer program (col. 5, lines 58-65 and col. 7, lines 6-50); input for receiving a signal representing a sound; and left and right channel with a filter array for applying a filter to the signal, in which the function of the filter comprises a head-related impulse response; and an output for converting the filtered signals to the binaural sound and producing a sound to the listener (figure 5a and col. 6, lines 20-44 and col. 13, lines 24-59).

Regarding **claims 14 and 18**, Chen et al. discloses everything claimed as applied above (see claims 9 and 16, respectively). Chen et al.'s disclosure further teaches a plurality of eigen filters in a range from 3 to 16. (figure 5a, col. 4, lines 39-67 and col. 5, lines 1-4).

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. **Claim 20** is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al. in view of Sekine et al. (U. S. Patent No. 5822438).

Regarding claim 20, Chen et al. discloses everything claimed as applied above (see claim 16). However, Chen et al. fails to specifically disclose a cross-talk canceler. The examiner maintains that a cross-talk canceler was well known in the art.

Regarding a cross-talk canceler, in a similar field of endeavor, Sekine et al. discloses a sound-image position control apparatus. Sekine et al.'s apparatus comprises a cross talk canceler. (col. 5, 2<sup>nd</sup> paragraph).

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of Chen et al. by implementing a cross talk canceler prior to reproduction to speakers for the purpose of canceling/eliminating the cross-talk sounds which emerge when a person hears with both ears as taught by Sekine et al.

#### ***Allowable Subject Matter***

7. **Claim 8** is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Citation of Prior Art***

8. Prior art made of record and not relied upon is considered pertinent to the applicant's disclosure.

Goldfarb, U. S. Patent No. 5764777, discloses four-dimensional acoustical audio system.

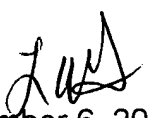
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***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura A. Grier whose telephone number is (703) 306-4819. The examiner can normally be reached on Monday - Friday, 7:30 am - 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forester W. Isen can be reached on (703) 305-4386. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

LAG   
September 6, 2001

  
FORESTER W. ISEN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2700